

WHAT IS CLAIMED IS:

1. An apparatus, for use with a digitized image processing system in which images are digitized as image data which is stored as digitized image data files in a digital database, for controlling the manner in which the digitized images are accessed from the image data files in the digital database and provided to an output of the apparatus for display on an image reproduction device, the apparatus comprising:

a plurality of image memories; and
program means, responsive to user commands, for reading selected image data files and storing the image data in respective ones of the image memories for display on an image reproduction device.

2. An apparatus as recited in claim 1 further comprising program means for defining a plurality of sections of the image reproduction device and for associating the image data in the memory devices with respective ones of the sections.

3. An apparatus as recited in claim 2 wherein the image reproduction device includes a television display having a two-dimensional array of pixels arranged in rows and columns; and the apparatus further comprises:

program means for defining sections of the image reproduction device in terms of pixel rows and columns; and

program means for mapping pixels of the image data in the respective memory devices to the respective sections of the array by row and column.

4. An apparatus as recited in claim 3 wherein the program means for mapping include means for decimating the image data.

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5. An apparatus as recited in claim 3 wherein the means for mapping include means for cropping the image data.

6. An apparatus according to claim 1, further comprising program means for controllably generating border image signals representative of image characteristics of at least one border region to be combined with the image data, and for coupling the border image signals to the image reproduction device, so that the image reproduced thereby is bound by the at least one border region.

7. An apparatus as recited in claim 1 further comprising:

program means for controllably reading image data files from the data base in a first selected order; and

program means for loading image data from the image data files read by the program means for reading into respective ones of the plurality of image memories in a second selected order.

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8. An apparatus as recited in claim 7 further comprising:

program means for arranging the image data files in the data base into a predetermined sequence which defines the selected order in which the image data files are to be read.

9. An apparatus as recited in claim 8 further comprising:

program means, responsive to a first user command for displaying a first image from a first one of the image data files, for reading other image data from at least one other image data file having a position in the predetermined sequence adjacent to the first image data file and for loading the other image data into at least one other image memory.

10. An apparatus as recited in claim 9 further comprising:

program means, responsive to a subsequent user command for displaying a second image from one of the at least one other image data file, for coupling the image data of the second image data which is already in the at least one other image memory to the output.

11. An apparatus, for use with a system including a digital data base for storing image data files containing digitized images, for controlling concurrent display of multiple still images on a display device coupled to an output thereof, the apparatus comprising:

a plurality of image memories for storing digitized images read from the data base; and

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a controller for controlling the reading of selected ones of the image data files responsive to user commands, for storing digitized image data therefrom in respective ones of the image memories, and for coupling the image data to the output.

12. An apparatus as recited in claim 11 wherein:

the controller includes program means for dividing the display device into a plurality of sections and for allocating images stored in respective ones of the image memories to the sections for concurrent display.

13. An apparatus as recited in claim 12 wherein:

the display device includes a screen pixel array having pixels which are arranged in columns from an initial column to a final column, and rows which are arranged from an initial column to a final column; and

the program means for dividing include means for defining the plurality of sections as having at least one of a subset of the rows of the screen pixel array and a subset of the columns of the screen pixel array, the subsets being defined in terms of the rows and columns.

14. An apparatus as recited in claim 13 wherein the program means for dividing further include means for mapping the image data stored in the image memories to respective sections of the screen pixel array.

15. An apparatus as recited in claim 14 wherein the means for mapping include means for decimating at least one of the rows and columns of the image data.

16. An apparatus as recited in claim 14 wherein the means for mapping include means for cropping the image.

17. An apparatus as recited in claim 14 wherein the means for mapping includes means for:

mapping rows of image data to rows of screen pixels of the section and columns of image data to columns of screen pixels of the section, thereby orienting the image at a 0° angle to the screen;

mapping rows of image data to columns of screen pixels of the section and columns of image data to rows of screen pixels of the section in reverse order, thereby orienting the image at a 90° angle to the screen;

mapping rows of image data to rows of screen pixels of the section in reverse order and columns of image data to columns of screen pixels of the section in reverse order, thereby orienting the image at a 180° angle to the screen; and

mapping rows of image data to columns of screen pixels of the section in reverse order and columns of image data to rows of screen pixels of the section, thereby orienting the image at a 270° angle to the screen.

18. An apparatus as recited in claim 11 wherein:
the image data files stored in the data base are arranged in a sequence for display;

the controller includes program means, responsive to a first user command for reading and displaying a first image, for reading a second one of the image data files having a position in the sequence adjacent to the position of the first image data file, and loading the second image data therefrom into a second one of the image memories; and ^A

the controller further includes program means, responsive to a second user command for reading and displaying the second image, for displaying the image data for the second image in the second image memory, thereby avoiding a delay caused by the time required for reading the second image data file from the data base and loading the second image data file into an image memory.

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a2* } 19. A method, for use with a digital image processing system including a digital data base having a plurality of images digitized as image data and stored in respective image data files therein, a plurality of image memories, and an output for coupling thereto an image display device having a screen for display of images, for controlling the display of the images, the method comprising the steps of:

defining at least one section of the screen;

reading image data from at least one of the image data files and loading the image data into at least one image memories;

allocating at least one image memory containing image data to the at least one section of the screen, respectively; and

displaying the image data from the at least one image memory on the at least one screen section.

20. A method as recited in claim 19 wherein:
 the screen includes a two-dimensional array of
 screen pixels arranged in rows and columns; and
 the step of defining includes selecting at least one
 subset of the screen pixels, by row and column.

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 21. A method as recited in claim ~~20~~² wherein the image
 data includes a plurality of image data pixels, each
 pixel datum having a row and a column associated
 therewith, and the step of displaying includes mapping
 the image data pixels to the screen pixels of the
 respective screen section, by row and column.

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 22. A method as recited in claim 21 further comprising
 the step of manipulating the displayed image by changing
 the mapping of the image data pixels to the screen pixels
 of the respective screen section.

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 23. A method as recited in claim 22 wherein the step of
 manipulating is carried out independently for each of the
 at least one image displayed on the at least one screen
 section.

24. A method as recited in claim 22:
 further comprising the step of selecting a plurality
 of ones of the images displayed on the screen sections
 for manipulation; and wherein: *C*
 the step of manipulating is carried out for each of
 the selected images responsive to a single user command.

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 25. A method as recited in claim ~~22~~³ wherein the step of
 manipulating includes decimating the image data.

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 26. A method as recited in claim ~~22~~³ wherein the step of
 manipulating includes cropping the image data.

~~27~~⁷. A method as recited in claim ~~22~~⁴ wherein the step of manipulating includes zooming the image.

28. A method as recited in claim 27 wherein the step of zooming includes defining, by minimum and maximum row and minimum and maximum column, a subset of the image data, redefining the subset by one of (a) increasing the minima and decreasing the maxima, and (b) decreasing the minima and increasing the maxima, incrementally over a period of time responsive to a user command, and displaying the subset, in accordance with the changing definition of the minima and maxima of the subset, concurrently with the time period over which the minima and maxima are redefined.

~~29~~⁸. A method as recited in claim ~~22~~⁴ wherein the step of manipulating includes panning the image.

30. A method as recited in claim 29 wherein the step of panning includes defining, by minimum and maximum row and minimum and maximum column, a subset of the image data, redefining the subset by one of (a) increasing the row minimum and maximum, (b) decreasing the row minimum and maximum, (c) increasing the column minimum and maximum, and (d) decreasing the column minimum and maximum, incrementally over a period of time responsive to a user command, and displaying the subset, in accordance with the changing definition of the minima and maxima of the subset, concurrently with the time period over which the minima and maxima are redefined.

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9. 31. A method as recited in claim ³21 wherein the step of mapping includes one of:

mapping rows of image data to rows of screen pixels of the section and columns of image data to columns of screen pixels of the section, thereby orienting the image at a 0° angle to the screen;

mapping rows of image data to columns of screen pixels of the section and columns of image data to rows of screen pixels of the section in reverse order, thereby orienting the image at a 90° angle to the screen;

mapping rows of image data to rows of screen pixels of the section in reverse order and columns of image data to columns of screen pixels of the section in reverse order, thereby orienting the image at a 180° angle to the screen; and

mapping rows of image data to columns of screen pixels of the section in reverse order and columns of image data to rows of screen pixels of the section, thereby orienting the image at a 270° angle to the screen.

32. A method as recited in claim 19 further comprising the steps of:

arranging the image data files stored in the data base in a predetermined sequence for display;

reading, responsive to a first user command for displaying a first image, at least one other image data file having a position in the sequence adjacent to the position of the first image data file, and loading image data from the at least one other image data file into at least one other image memory; and

displaying, responsive to a second user command for reading and displaying one of the at least one other images, the image data for the one of the at least one other images in a respective one of the at least one other image memory.

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33. For use with a digitized image processing system in which digitized images are stored as digitized image data files in a digital database, an arrangement for controlling the manner in which digitized images are accessed from the image data files in the digital database and provided for display on an image reproduction device, comprising:

a remote control device for generating control signals for accessing images stored in said digital database; and

means, responsive to signals generated by said remote control device, for causing a plurality of digitized images to be accessed from said digital database for display together on an image reproduction device.

34. An arrangement according to claim 33, wherein said means comprises a plurality of image memories and program means for defining a plurality of sections of the image reproduction device and for associating the image data in the memories devices with respective ones of the sections in accordance with control signals generated by said remote control device.

35. An arrangement according to claim 34, wherein the image reproduction device includes a television display having a two-dimensional array of pixels, and wherein said means comprises means for defining sections of the image reproduction device in terms of said pixel array, and means for mapping pixels of the image data in the respective memories devices to the respective sections of said pixel array.

36. An arrangement according to claim 33, wherein said means is responsive to signals generated by said remote control device for causing individual ones of a plurality of digitized images accessed from said digital database for display on said image reproduction device to be independently controlled by said remote control device.

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